

I claim:

1. A pharmaceutical composition comprising erythropoietin and an amount of benzethonium chloride effective to inhibit microbial growth in said composition.
2. The composition of claim 1, wherein the composition further comprises phenoxyethanol.
3. The composition of claim 1, wherein the composition further comprises phenylethyl alcohol.
4. The composition of claim 1, wherein an effective amount of benzethonium chloride is a concentration of from about 0.001 to about 1.0%.
5. The composition of claim 1, wherein an effective amount of benzethonium chloride is a concentration of from about 0.01 to about 0.1%.
6. The composition of claim 1, wherein an effective amount of benzethonium chloride is a concentration of 0.005%.
7. The composition of claim 1, wherein an effective amount of benzethonium chloride is a concentration of 0.01%.
8. The composition of claim 1, wherein an effective amount of benzethonium chloride is a concentration of 0.02%.
9. The composition of claim 2, further defined as comprising benzethonium chloride in a concentration of from about 0.001 to about 1.0%, and phenoxyethanol in a concentration of from about 0.01 to about 1.0%.
10. The composition of claim 2, further defined as comprising benzethonium chloride in a concentration of from about 0.01 to about 0.1%, and phenoxyethanol in a concentration of from about 0.1 to about .75%.
11. The composition of claim 2, further defined as comprising benzethonium chloride in a concentration of 0.005%, and phenoxyethanol in a concentration of 0.25%.

12. The composition of claim 2, further defined as comprising benzethonium chloride in a concentration of 0.005%, and phenoxyethanol in a concentration of 0.5%.

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13. The composition of claim 2, further defined as comprising benzethonium chloride in a concentration of about 0.01%, and phenoxyethanol in a concentration of about 0.5%.

10 14. The composition of claim 3, further defined as comprising benzethonium chloride in a concentration of 0.02%, and phenylethyl alcohol in a concentration of 0.25%.

15 15. The composition of claim 3, further defined as comprising about 0.02% benzethonium chloride and about 0.25% phenylethyl alcohol.

16. The composition of claim 1, further defined as comprising a salt.

20 17. The composition of claim 16, wherein said salt is sodium chloride.

25 18. The composition of claim 1, further defined as comprising a buffer.

19. The composition of claim 18, wherein said buffer is sodium phosphate.

30 20. A pharmaceutical carrier composition for use as a carrier of erythropoetin, wherein said carrier comprises an amount of benzethonium chloride effective to inhibit microbial growth in said composition.

35 21. The pharmaceutical carrier of claim 20, further comprising phenoxyethanol.

22. The pharmaceutical carrier of claim 20, further comprising phenylethyl alcohol.

40 23. The pharmaceutical carrier of claim 20, wherein an effective amount of benzethonium chloride is a concentration of from about 0.001 to about 1.0%.

45 24. The pharmaceutical carrier of claim 20, wherein an effective amount of benzethonium chloride is a concentration of from about 0.01 to about 0.1%.

25. The pharmaceutical carrier of claim 20, wherein an effective amount of benzethonium chloride is a concentration of 0.005%.

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26. The pharmaceutical carrier of claim 20, wherein an effective amount of benzethonium chloride is a concentration of 0.01%.

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27. The pharmaceutical carrier of claim 20, wherein an effective amount of benzethonium chloride is a concentration of 0.02%.

15 28. The pharmaceutical carrier of claim 21, further defined as comprising benzethonium chloride in a concentration of from about 0.001 to about 1.0%, and phenoxyethanol in a concentration of from about 0.01 to about 1.0%.

20 29. The pharmaceutical carrier of claim 21, further defined as comprising benzethonium chloride in a concentration of from about 0.01 to about 0.1%, and phenoxyethanol in a concentration of from about 0.1 to about .75%.

25 30. The pharmaceutical carrier of claim 21, further defined as comprising benzethonium chloride in a concentration of 0.005%, and phenoxyethanol in a concentration of 0.25%.

30 31. The pharmaceutical carrier of claim 21, further defined as comprising benzethonium chloride in a concentration of 0.005%, and phenoxyethanol in a concentration of 0.5%.

35 32. The pharmaceutical carrier of claim 21, further defined as comprising benzethonium chloride in a concentration of about 0.01%, and phenoxyethanol in a concentration of about 0.5%.

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33. The pharmaceutical carrier of claim 22, further defined as comprising benzethonium chloride in a concentration of 0.02%, and phenylethyl alcohol in a concentration of 0.25%.

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34. The pharmaceutical carrier of claim 20, further comprising one or more additives selected from the group consisting of a buffer, a salt, and anti-adsorbant, and a surfactant.

45 35. A vial for containing multiple dosages of erythropoietin, wherein said vial contains a solution comprising erythropoietin and an amount of benzethonium chloride effective to inhibit microbial

growth in said composition.

36. The vial of claim 35, wherein said solution further comprises phenoxyethanol.

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37. The vial of claim 35, wherein said solution further comprises phenylethyl alcohol.

10 38. The vial of claim 35, wherein an effective amount of benzethonium chloride is a concentration of from about 0.001 to about 1.0%.

15 39. The vial of claim 35, wherein an effective amount of benzethonium chloride is a concentration of from about 0.01 to about 0.1%.

20 40. The vial of claim 35, wherein an effective amount of benzethonium chloride is a concentration of 0.005%.

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41. The vial of claim 35, wherein an effective amount of benzethonium chloride is a concentration of 0.01%.

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42. The vial of claim 35, wherein an effective amount of benzethonium chloride is a concentration of 0.02%.

30 43. The vial of claim 36, further defined as comprising benzethonium chloride in a concentration of from about 0.001 to about 1.0%, and phenoxyethanol in a concentration of from about 0.01 to about 1.0%.

35 44. The vial of claim 36, further defined as comprising benzethonium chloride in a concentration of from about 0.01 to about 0.1%, and phenoxyethanol in a concentration of from about 0.1 to about .75%.

40 45. The vial of claim 36, further defined as comprising benzethonium chloride in a concentration of 0.005%, and phenoxyethanol in a concentration of 0.25%.

46. The vial of claim 36, further defined as comprising benzethonium chloride in a concentration of 0.005%, and phenoxyethanol in a concentration of 0.5%.

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47. The vial of claim 36, further defined as comprising benzethonium chloride in a concentration of about 0.01%, and phenoxyethanol in a concentration of about 0.5%.

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48. The vial of claim 37, further defined as comprising benzethonium chloride in a concentration of 0.02%, and phenylethyl alcohol in a concentration of 0.25%.

10 49. The vial of claim 37, further defined as comprising about 0.02% benzethonium chloride and about 0.25% phenylethyl alcohol.

15 50. The vial of claim 1, wherein said solution further comprises a salt.

51. The vial of claim 50, wherein said salt is sodium chloride.

20 52. The vial of claim 35, wherein said solution further comprises a buffer.

53. The vial of claim 52, wherein said buffer is sodium phosphate.

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54. A method of inhibiting microbial growth in a solution comprising erythropoietin, said method comprising adding benzethonium chloride to said solution.

30 55. The method of claim 54, wherein said method further comprises adding phenoxyethanol to said solution.

35 56. The method of claim 54, wherein said method further comprises adding phenylethyl alcohol to said solution.

40 57. The method of claim 54, wherein said benzethonium chloride is added to a concentration of from about 0.001 to about 1.0%.

58. The method of claim 54, wherein said benzethonium chloride is added to a concentration of from about 0.01 to about 0.1%.

45 59. The method of claim 54, wherein said benzethonium chloride is added to a concentration of

0.005%.

5 60. The method of claim 54, wherein said benzethonium chloride is added to a concentration of 0.01%.

10 61. The method of claim 54, wherein said benzethonium chloride is added to a concentration of 0.02%.

15 62. The method of claim 55, wherein benzethonium chloride is added in a concentration of from about 0.001 to about 1.0%, and phenoxyethanol is added in a concentration of from about 0.01 to about 1.0%.

20 63. The method of claim 55, wherein benzethonium chloride is added in a concentration of from about 0.01 to about 0.1%, and phenoxyethanol is added in a concentration of from about 0.1 to about .75%.

25 64. The method of claim 55, wherein benzethonium chloride is added in a concentration of 0.005%, and phenoxyethanol is added in a concentration of 0.25%.

30 65. The method of claim 55, wherein benzethonium chloride is added in a concentration of 0.005%, and phenoxyethanol is added in a concentration of 0.5%.

35 66. The method of claim 55, wherein benzethonium chloride is added in a concentration of about 0.01%, and phenoxyethanol is added in a concentration of about 0.5%.

40 67. The method of claim 56, wherein benzethonium chloride is added in a concentration of 0.02%, and phenylethyl alcohol is added in a concentration of 0.25%.

45 68. The method of claim 56, wherein benzethonium chloride is added in a concentration of about 0.02% , and henylethyl alcohol is added in a concentration of about 0.25%.

69. The method of claim 54, further comprising adding a salt to said solution.

70. The method of claim 69, wherein said salt is sodium chloride.

71. The method of claim 54, further comprising adding a buffer to said solution.

72. The method of claim 71, wherein said buffer is sodium phosphate.